

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

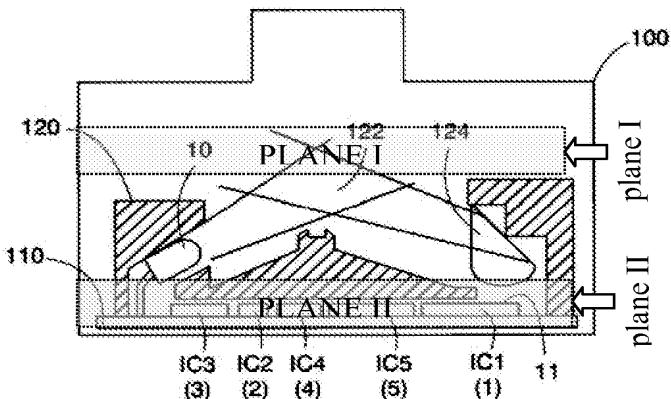
Claims 1 and 4-26 remain in the application. Claim 23 has been amended.

Support for the added language in claim 23 is found in the original claims and in the figures of the drawing. By way of example, Fig. 2 shows the sensor assembly in the common plane with the air access openings.

We first turn to the rejection of claims 23-26 as being anticipated by Nishikawa et al. (US 6,552,664, hereinafter “Nishikawa”) under 35 U.S.C. § 102.

In explaining the rejection, the Primary Examiner stated that Nishikawa shows “the sensor arrangement and the access opening . . . substantially in one plane.” Office action, page 3, lines 3-4. We respectfully submit that claim 23 did not have such a limitation. We have, nevertheless, included the limitation in the amended claim 23.

We have previously argued that Nishikawa does not have a sensor arrangement and air access openings in a common plane. As such, we do not understand the Primary Examiner’s continued insistence to the opposite. Fig. 1 of Nishikawa clearly supports applicants’ contention. The diffusion region 122 is



located well above (i.e., below in the case of a ceiling assembly) the remaining components – marked “plane I”. The “sensor arrangement” of Nishikawa is disposed on a different level – plane II – from the light diffusion region. The air access openings are not shown by Nishikawa, but it is entirely clear that they would be located somewhere on plane I. Nishikawa’s light source 10 points upward, away from the sensor arrangement, and the prism 124 is disposed to project the diffused light back downward to the level of the IC1 which contains the photo-diode 11.

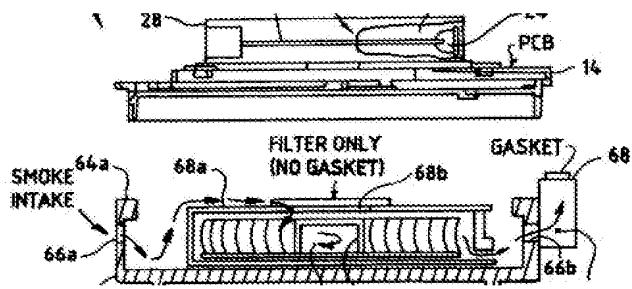
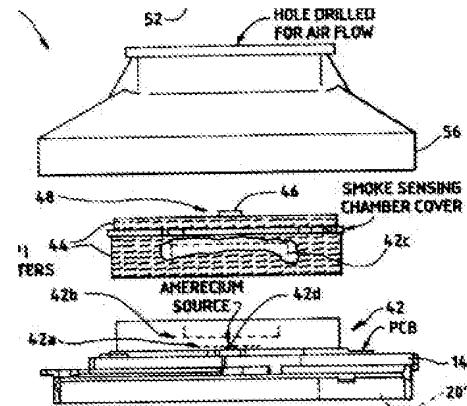
Claim 23 of the application calls for the housing to be formed so as to accommodate the first or second sensor (depending on which module is inserted into the housing) so as to place the sensor at a location substantially in a common plane with said air access openings formed in said housing. Alone for this reason, Nishikawa does not anticipate claim 23.

In a structural sense, Nishikawa belongs to a different class of detectors. The detector of the application is a “flat detector” which projects from the mounting plate by only a minor amount. This can be achieved when, as claimed by applicants, the sensor and the intake openings are disposed in a common plane. The prior art detector is different. There, the IC carrier is mounted close to the mounting plate and smoke is sensed by projecting a light into a sensing region that is vertically offset from the mounting plate. Necessarily, the intake openings of Nishikawa are also located somewhere on the same level with the sensing region.

This brings us to the secondary reference. Claims 1, 4-6, 8-13, and 18-26 have been rejected as being obvious under 35 U.S.C. § 103 over Nishikawa in view of Wiemeyer et al. (US 6,166,648, hereinafter “Wiemeyer”).

Similarly to the primary reference, Wiemeyer also does not belong to the art of “flat detectors.”

Wiemeyer describes several embodiments, including smoke detectors with external forced air flow circulation and internal air flow devices with housing vacuum or housing over-pressure. In all cases, there is provided a fan module and/or a filter module with a photo diode module stacked vertically on top. Fig. 2, for example, as shown here, has the air aspiration at the top of the cap 56 (“hole drilled for air flow”) and the PCB vertically below at the bottom.



Similarly, Fig. 3 shows the “smoke intake” opening 66a at the bottom of the device, well below the PCB which has the laser detector mounted above. Fig. 4 shows the air intake openings at the top of the hood (“intake 360°”) and the laser/photodiode detector assembly well below the filter 83.

Fig. 5 is no different. There, the intake openings 94b are shown at the bottom and the sensor is placed vertically above, with the fan assembly pumping the air from the intake upward through the pimp 96 and past the PCB 14”.

The secondary reference Wiemeyer does not show or suggest placing the air intake openings in a common plane with the sensor assembly.

With regard to the “modular” issue, Wiemeyer does indeed describe his system as a modular system and there are shown a variety of embodiments of the basic sensor. Wiemeyer does not, however, suggest the modularity of the claimed invention, where a complete, fully application-specific detector module may be inserted into the housing in place of a similar module with different functionality.

Claims 7 and 14-17 have been rejected as being obvious over Nishikawa in view of Wiemeyer and further in view of Rattman et al. (US 6,756,905) under 35 U.S.C. § 103.

Our prior arguments with regard to Rattman are incorporated herein by reference. We do acknowledge the “labyrinth” disclosure of the secondary reference. The shortcomings of the primary combination, however, is not overcome with the secondary reference Rattman. The secondary reference was cited for the labyrinth system. The further reference does nothing to modify the primary reference towards the “modular” concept or the “flat” concept of the claimed invention.

In summary, none of the references, whether taken alone or in any combination, either show or suggest the features of the independent claims. All of the claims are patentable over the art of record.

In view of the foregoing, the allowance of the claims is solicited.

Respectfully submitted,

/Werner H. Stemer/

Werner H. Stemer
(Reg. No. 34,956)

WHS:sa

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Lerner Greenberg Stemer LLP
P.O. Box 2480
Hollywood, Florida 33022-2480
Tel.: 954-925-1100
Fax: 954-925-1101